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ABSTRACT

A Language-research experiment designed to examine the linguistic competence of bilingual Italian-American children demonstrates that structures shared by Italian and English are acquired in approximately the same order and at the same rate, and that the sequencing of specific structures reflects linguistic complexity. Structures appearing in both languages are believed to have a common underlying base and realized by the same set of transformational rules. The definite sequencing evident in child-language acquisition may have implications for second-language acquisition by adults; instructional materials and programs could be established with this in mind. (VM)

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SYNTACTIC CONTRASTS IN CHILD BILINGUALISM

BY

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SYNTACTIC CONTRASTS IN CHILD BILINGUALISM

1. Nature of the study. Through hypothesizing, testing, evaluating, children internalize the set of rules that account for the grammar of the language to which they are exposed. When the linguistic environment is multilingual, they construct grammars with which they are in contact. In this view, child bilinguals develop the grammars of their two languages without formal instruction.

This paper reports an investigation of a selected group of twelve children, age 6 to 8, bilingual in Italian and English. All were in the bilingual environment of the Italo-American community of South Philadelphia for at least three years and had developed linguistic competence in the two languages. Although competence, the internalized set of rules, and performance, the use of language, are inseparably interrelated, competence is assumed to be testable.

The basic hypothesis set up for this investigation states that structures shared by Italian and English develop in the same order and at the same rate in the bilingual child. The theoretical basis on which this hypothesis rests is that shared structures find their source in a common underlying base and are realized by the same set of transformational rules. Contrasts, the similarities and differences between languages, derive from deep structure identities and ordered sets of transformational rules accounting for surface manifestations and language-specific characteristics. For bilingual children some of the rules in their grammars are

shared by the two languages; others are unique to each.

A battery of comprehension tests administered to each child in Italian and English investigated a wide range of surface structures which the literature on child language indicates as late-developing. The general pattern for the sequencing and rate of acquisition for selected inflectional categories and syntactic structures is interpreted through a correlation study using the University of Miami computer program FACTOR. The linguistic analysis is based on case grammar as formulated by Fillmore (1968, 1971) and modified by Di Pietro (1971).

Thirteen syntactic structures shared by Italian and English along with one Italian-specific and two English-specific structures were studied. Comprehension tests were based on paired items, which were separated and randomized in their presentation. From a set of three pictures, two of which represented the items in the pair, the child pointed to that which designated the expression he heard from a tape stimulus.

In terms of surface realizations, syntactic structures ranged from active/passive relationships to comparatives and subject/object contrasts. (The complete set with examples is given in Appendix A.)

The test for comprehension of selected inflectional categories consisted of six word class-feature combinations. Isolation of particular features made it possible to test structures common to the two languages, a goal which seemed to justify risking distortion of the complex set of interrelationships operating among features for Italian.

Features examined varied from verb tense to noun number. (The complete list is given in Appendix B.)

Test scores, means and standard deviations, the number of errors per structure, and the linguistic analysis of those structures are interrelated to gain insights into the grammar construction processes for the acquisition of two languages.

2. Statistical analysis. For each child in the study scores were obtained for the comprehension of syntactic structures on an Italian form of the test (I-S) and an English form (E-S). The comprehension of inflectional categories was determined from the Italian test (I-N) and English test (E-N). Means and standard deviations computed for these variables are given in Table 1.

TABLE 1

MEANS AND STANDARD DEVIATIONS

Variable	Items/Test	Mean	Standard Deviation
I-Structures	84	56.75	8.10
E-Structures	90	60.75	9.73
I-Inflection	36	24.50	4.25
E-Inflection	36	29.67	3.14

Means and standard deviations indicate that the children had acquired much of the structure of their two languages. Furthermore, standard deviations indicate a fairly homogeneous group.

The overall pattern is further explicated in a correlation

study of the respective variables. A 0.82 correlation coefficient for scores on the tests for comprehension of syntactic structures in the two languages indicates that Italian and English were at approximately the same level of acquisition. Inflectional categories correlated slightly lower with a 0.76 coefficient.

Interpretation of means, standard deviations, and correlation coefficients gives a broad outline for determining late acquisitions. Individual test scores reveal that no child had stabilized all of the structures investigated. The sequencing of particular structures with respect to each other requires a detailed linguistic analysis.

3. Acquisition of inflectional categories. Table 2 gives the total number of errors for the specific structures on the test for inflectional categories.

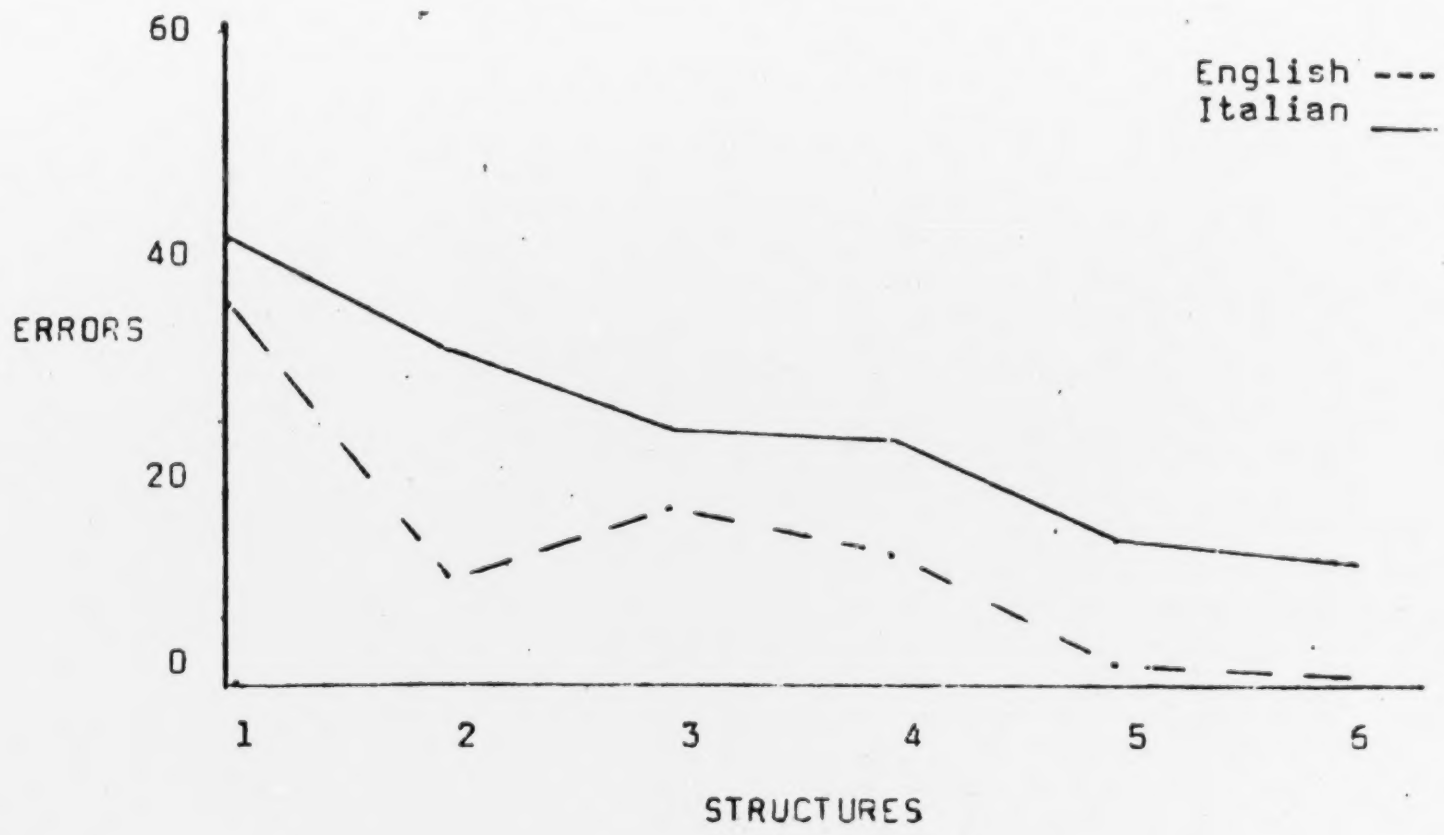
TABLE 2

ERRORS IN INFLECTIONAL CATEGORIES

	Italian	English
Responses/structure	72	72
1. verb tense	40	34
2. personal pronoun	30	10
3. verb person	23	16
4. possessive adjective	22	12
5. noun gender	13	2
6. noun number	11	1

Ranging from the least differentiated structure, verb tense, to

the most highly stabilized, noun number, Graph 1 illustrates the comparative sequencing of Italian and English inflections. The numbers on the horizontal axis correspond to those assigned to the inflectional categories listed on Table 2.



Graph 1. Sequencing of Italian and English inflections

Except for the object pronoun, both systems were following the same pattern, but at different rates. Italian was consistently slower.

A contrastive analysis of the two pronominal systems may explicate the observed deviation. The view taken in this analysis is that certain syntactic features are associated with particular word classes. From a set of features as [number, gender, person, case, tense], each class selects one or more according to language-

specific rules.

Personal pronouns in Italian and English select number, gender, person, and case. Holding number and person constant, gender was tested in its correlation with the objective and goal cases. A significant contrast is in the selection of case markings. English does not distinguish objective and goal cases. Italian, however, has a constraint that requires the presence of one case marking to the exclusion of the other, [α case O, -α case G]. This could account for the late acquisition of Italian object pronouns.

It is not surprising to observe that verb tense is under-differentiated in both languages. Italian relies on an intricate set of inflectional markers; English on phrasal constructions. Undoubtedly, however, the child's understanding of tense is intimately connected not only with the assignment of syntactic features but also with semantics and cognitive development.

4. Acquisition of syntactic structures. Table 3 lists the number of errors for each syntactic structure tested in both Italian and English.

To focus on contrasts, Graph 2 relates the sequencing of structures shared by Italian and English. The slope of the lines descending from the unstabilized for-to construction to subject/object relationships demonstrates the gradual process of language acquisition.

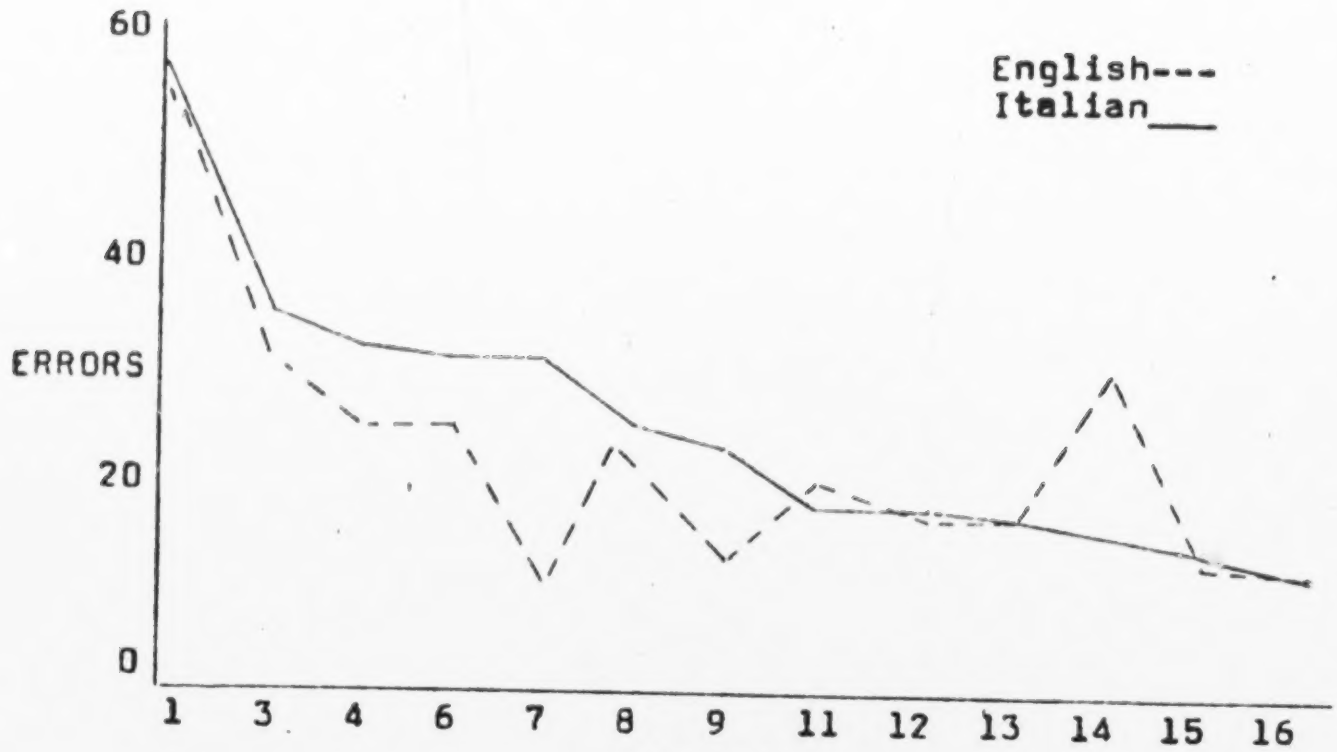
The comparative sequencing of syntactic structures displays a remarkable parallelism. Highly unstabilized are the for-to, passive, and relative clause constructions in both languages.

TABLE 3

ERRORS IN SYNTACTIC STRUCTURES

	Italian	English
Responses/structure	72	72
1. for-to	56	54
2. object inversion (English)	--	48
3. passive	34	29
4. relative clause	31	24
5. Y's X (English)	--	25
6. X of Y	30	24
7. object pronoun	30	10
8. active	24	22
9. possessive adjective	22	12
10. impersonal si (Italian)	21	--
11. comparative	17	19
12. from-to	17	16
13. noun-adjective	16	16
14. reflexive/reciprocal	15	29
15. direct/indirect object	1[illegible]	12
16. subject/indirect object	11	11

The three significant deviations involve the object pronoun, possessive adjective, and reflexive/reciprocal distinctions.



Graph 2. Comparison of sequential acquisitions in Italian and English

Although variations in the acquisition rate for object pronouns and possessive adjectives are possibly traceable to language-specific feature selections as previously discussed, these two inflected structures are inserted here to determine their position relative to other syntactic structures and to give them consideration in the light of their deep structure.

Reflexive/reciprocal relationships are given in English as the girls see themselves vs. the girls see one another and in Italian as the ambiguous le ragazze si vedono.

For the reflexive, the verb is inserted in the case frame V[__A O S G]/A=O S G. Agentive is coreferential, i.e. has the same semantic referent, with objective, source, and goal. As a result, the underlying structure is simply a verb with a noun phrase marked for A-case. Application of realization rules for

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A-copying and [+pronoun] feature insertion result in the structure diagrammed in 1.

(1)

The set of coreferential case relations, obligatorily observed in English, irrelevant for Italian, and the linear arrangement of elements on the surface are notable contrasts.

The reciprocal results from the same case frame as the reflexive but with different coreferential roles. Agentive has the same semantic referent as S and G only. For Italian this distinction is irrelevant, but for English it results in the realization of a particular set of pronouns under objective case. One would expect, consequently, the less complex Italian structures to be acquired before English ones.

To test for-to relationships, pairs presented were of the type the baby gives the ball for the cat to the dog vs. the baby gives the ball for the dog to the cat, or the Italian il bambino dà la palla del gatto al cane vs. il bambino dà la palla del cane al gatto. This structure introduces the benefactive case. Agentive and source are coreferential, giving the frame V[__A O S G B]/A=S.

After ordering the cases and insertion of the language-specific preposition, the resulting surface structure is the baby gives the ball to the dog for the cat or the baby gives the ball to the cat for the dog. For testing comprehension, sentences presented to the

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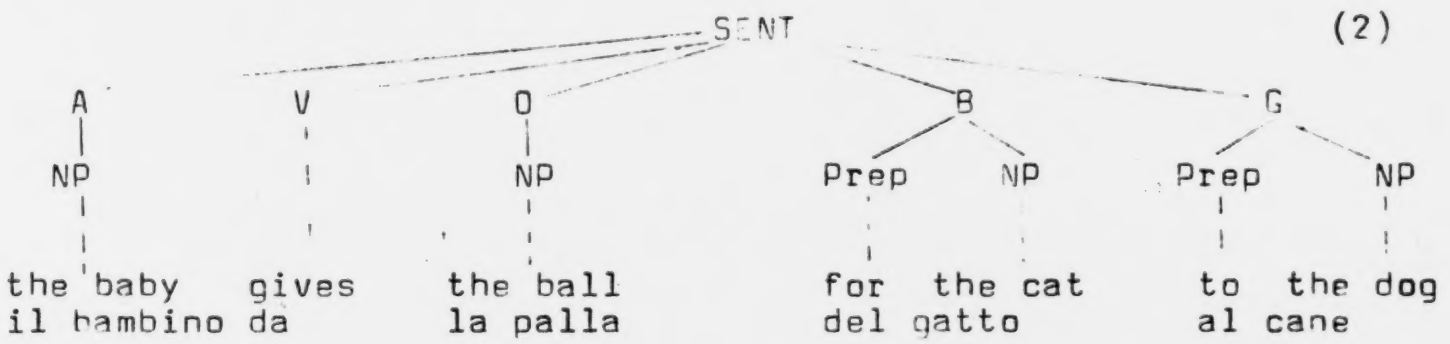
children reflected a deviation in this arrangement. The variant may be specified as resulting from a transformation of rank shift between cases G and B, giving the final structure diagrammed in 2.



(2)

Of the structures tested, this one presented the greatest difficulty. One may hypothesize that the unusual rank shift may be responsible for the delay in acquisition.

The surface passive is exemplified in the ball has been hit by the boy and the boy has been hit by the ball or the Italian la palla è stata colpita dal ragazzo and il ragazzo è stato colpito dalla palla. Formation of this structure also requires a transformational rule for rank shift, one which assigns case-O to surface subject position, rather than case-A.

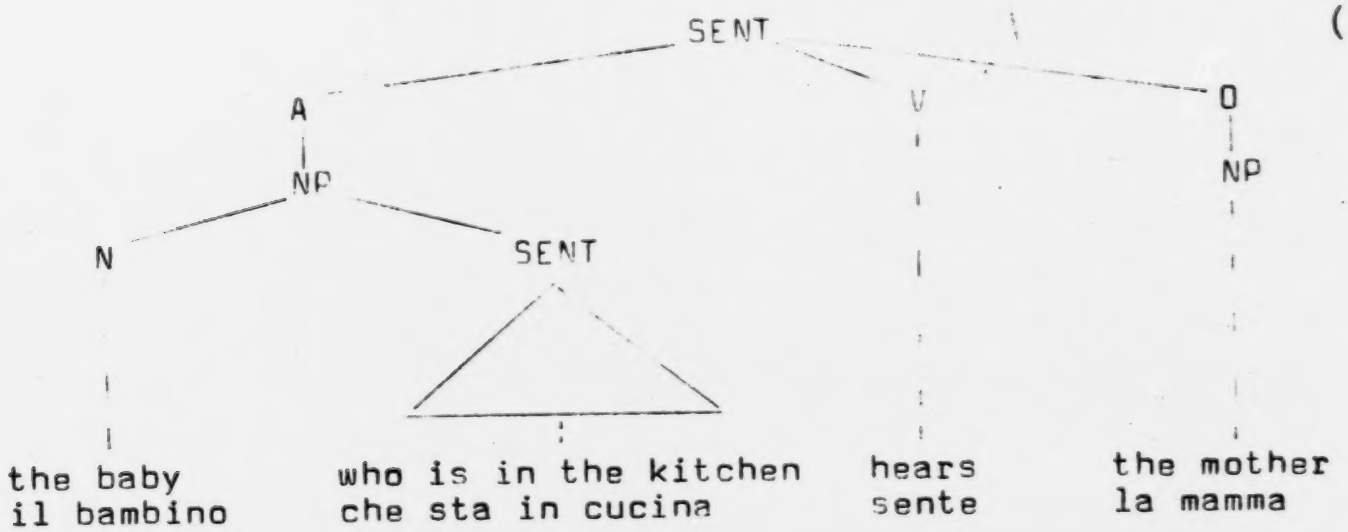
For verbs inserted in the frame V[__A O S G]/A=S, an English-specific relationship between objective and goal cases is exemplified in the girl shows the cat the bird and the girl shows the bird the cat. The normal assignment of the second case, objective in this construction, as direct object is violated by a rule for rank shift, which orders case G ahead of case O.

From the deep structure standpoint, one may infer that children first acquire the rule for the normal hierarchical arrangement of

cases. The transformation of rank shift appears to be a very late acquisition.

Among other late acquisitions is the relative clause of the type the baby who is in the kitchen hears the mother vs. the baby hears the mother who is in the kitchen. The Italian realization is il bambino che sta in cucina sente la mamma vs. il bambino sente la mamma che sta in cucina. Complex sentences as this result from embedding a simple sentence with the case notation V[__O L]. When this sentence is embedded, it can be inserted under either case A or case O. If embedding occurs under agentive case, sentence 3 results.

(3)



Embedding under O-case gives the surface realization the baby hears the mother who is in the kitchen. The children tested were generally unable to distinguish expansion of agentive as opposed to objective case.

For structures dependent on NP-feature specifications, realization of the objective and goal cases as personal pronouns caused the greatest difficulty. Although Italian and English

share the general rule for pronominalization of case O, specific realizations vary. In terms of word order, English observes a V-Pronoun arrangement; Italian, Pronoun-V. For case G, English specifies a V-Pronoun-O sequence; Italian, Pronoun-V-O. Pronominalization rules are acquired in English considerably in advance of Italian. One explanation may be that English retains the surface case order for the pronoun that is also observed when the underlying NP is realized as a nominal. Italian does not. Reordering, then, may be a factor in the late acquisition of Italian pronouns. This syntactic consideration combined with complex morphophonemic rules may account for the delay in control of Italian object pronouns.

Some noun phrases can be marked for realization as possessive adjectives as in its pilot vs. his plane or la sua pilota vs. il suo aereo. The feature [+adjective] is associated with the NP dominated by G-case in an embedded sentence. In the realization of this feature as an adjective, a general rule applies to reorder and delete elements in the underlying structure. Although the rule is a shared one, this structure is possibly acquired later in Italian than in English because of the morphophonemic rules. Syntactically, both languages observe the same ordering.

5. Summary. Generalizations which can be made for the acquisition of Italian and English structures by bilingual children are: (1) structures shared by the two languages are acquired in approximately the same order and at the same rate, (2) the sequencing of specific structures reflects linguistic complexity. Explicated in terms of case relations, embeddings, and feature specifications, the structures tested gave indication that the most complex were

those involving a transformation for rank shift in the hierarchy of case relations. Embeddings such as that found in certain types of relative clauses also produce linguistically complex structures that are acquired late.

Acquisition of inflectional categories follows approximately the same sequencing in Italian and English. Exception is made for those structures which require language-specific case considerations. The Italian system is generally acquired somewhat later, possibly because of the morphophonemics of the language.

6. Implications for second-language learning. The sequence in which children acquire structures may be an order functioning significantly in adult second-language learning. If so, the acquisition of structures by bilingual children may have specific implications for the sequential arrangement of structures in the presentation of the target language.

Findings of this investigation suggest that children acquire structures shared by two languages in the same sequence and at the same rate and that the sequential order is dependent on linguistic complexity. It may be that the language acquisition process for the adult learner is qualitatively the same as that for the child in the sense that he also acquires a new language by making hypotheses leading to the build-up of linguistic competence in a second language. If so, one would expect the most complex rules to develop last.

If the child's order of acquisition does also function for the adult, materials developed for second-language teaching could present new structures according to the child's sequential pattern.

Structures involving rank shifts, certain types of embeddings, complex sets of morphophonemic rules would then be placed among those introduced late in a course of instruction.

The second-language learner has the cognitive maturation to work with language. His problem is the internalization of rules for the grammar he is constructing. Applied to ESL teaching, strategies that present English structures in a systematic sequence based on that followed by children may help the adult acquire his new rules.

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APPENDIX A - SYNTACTIC STRUCTURES

1.	for-to	the baby gives the ball for the cat to the dog the baby gives the ball for the dog to the cat il bambino dà la palla del gatto al cane il bambino dà la palla del cane al gatto
2.	object inversion (E)	the girl shows the cat the bird the girl shows the bird the cat
3.	passive	the ball is hit by the boy the boy is hit by the ball la palla è stata colpita dal ragazzo il ragazzo è stato colpito dalla palla
4.	relative clause	the baby who is in the kitchen hears the mother the baby hears the mother who is in the kitchen il bambino che sta in cucina sente la mamma il bambino sente la mamma che sta in cucina
5.	Y's X (E)	the plane's pilot the pilot's plane
6.	X of Y	the pilot of the plane the plane of the pilot il pilota dell'aereo l'aereo del pilota
7.	object pronoun	he is giving her the book he is giving him the book le dà il libro gli dà il libro
8.	active	the boy hits the ball the ball hits the boy il ragazzo colpisce la palla la palla colpisce il ragazzo
9.	possessive adjective	his ball/their ball la sua palla/la loro palla

10.	impersonal <u>si</u> (I)	si colpisce il ragazzo si colpisce la palla
11.	comparative	the white ball is smaller than the black one the black ball is smaller than the white one la palla bianca è più piccola di quella nera la palla nera è più piccola di quella bianca
12.	<u>from</u>-<u>to</u>	the baby goes from the window to the door the baby goes from the door to the window il bambino va dalla finestra alla porta il bambino va dalla porta alla finestra
13.	noun-adjective	the dog with a white ball the white dog with a ball il cane con una palla bianca il cane bianco con una palla
14.	reflexive/reciprocal	the girls see themselves the girls see one another le ragazze si vedono le ragazze si vedono
15.	direct/indirect object	the boy is showing the bird to the cat the boy is showing the cat to the bird il ragazzo fa vedere l'uccello al gatto il ragazzo fa vedere il gatto all'uccello
16.	subject/indirect object	the boy is handing the book to the mother the mother is handing the book to the boy il ragazzo sta dando il libro alla mamma la mamma sta dando il libro al ragazzo

APPENDIX B - INFLECTIONAL CATEGORIES

1.	verb tense	he is jumping	salta
		he was jumping	saltava
		he will jump	salterà
2.	personal pronoun-object	she hears him	lo sente
		she hears her	la sente
		it pleases him	gli piace
		it pleases her	la piace
3.	verb person	he is running	corre
		they are running	corrono
4.	possessive adjective	his ball	la sua palla
		their ball	la loro palla
5.	noun gender	the boy	il ragazzo
		the girl	la ragazza
6.	noun number	the book	il libro
		the books	i libri